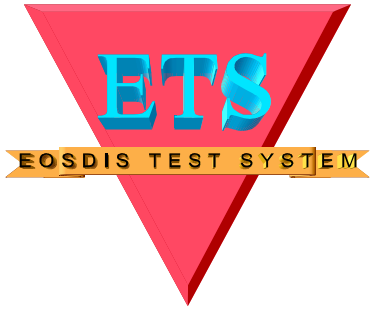
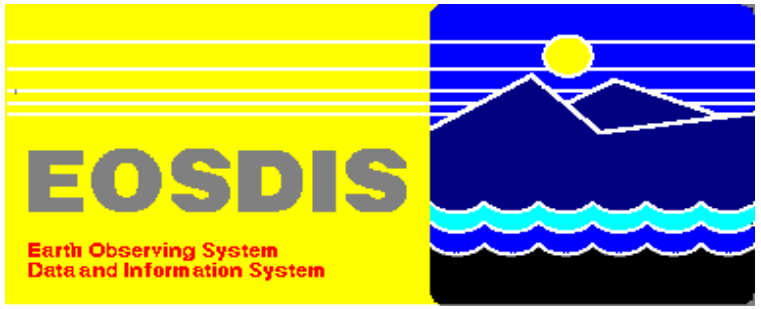




EOSDIS Test System (ETS) for Aura (CHEM-1) Support

MPS Requirements Discussion

December 5, 2000

Agenda

- Introduction
- Proposed New MPS Capabilities
- Tentative MPS Release Plan
- Potential MPS - IVVF Interface
- Dependencies and TBDs
- Summary

Starters

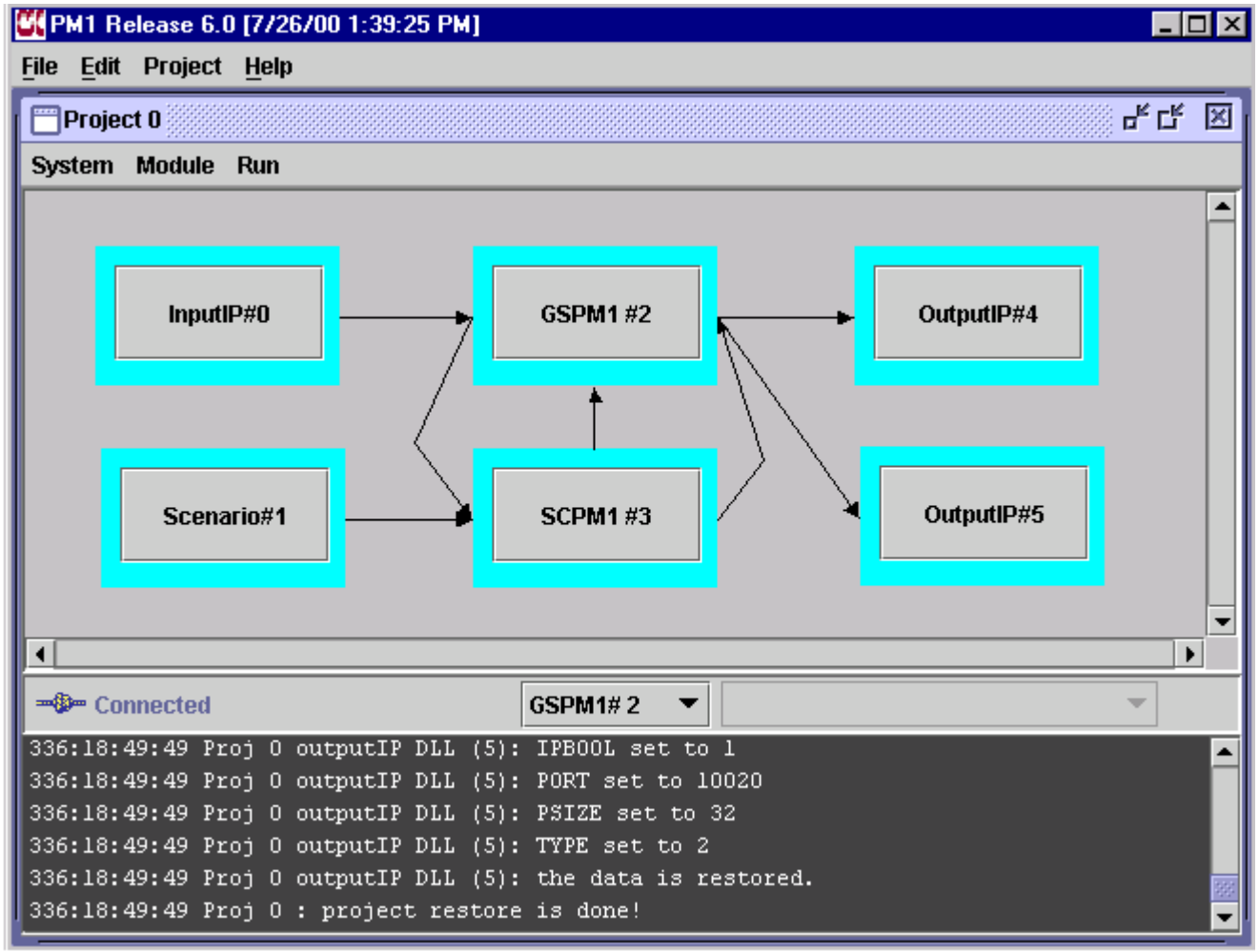
- MPS migration from VME platform for Terra to new PC architecture and design for Aqua has been a definite success
- Adaptation of MPS for Aura will be much simpler
  - Commonality of spacecraft
  - Baseline MPS now in place
- Provides opportunity for limited set of MPS enhancements that will benefit both Aura and Aqua MPS users

Purpose

- Propose additional MPS capabilities for Aura test support based on user input during MPS/Aqua usage, evolving MPS maturity and reliability, and customization needed
- Begin dialogue with Aura project and MPS users to discuss any new simulation and test system needs and our MPS development team informational needs
- Baseline initial set of requirements so development of MPS/Aura can start on schedule.

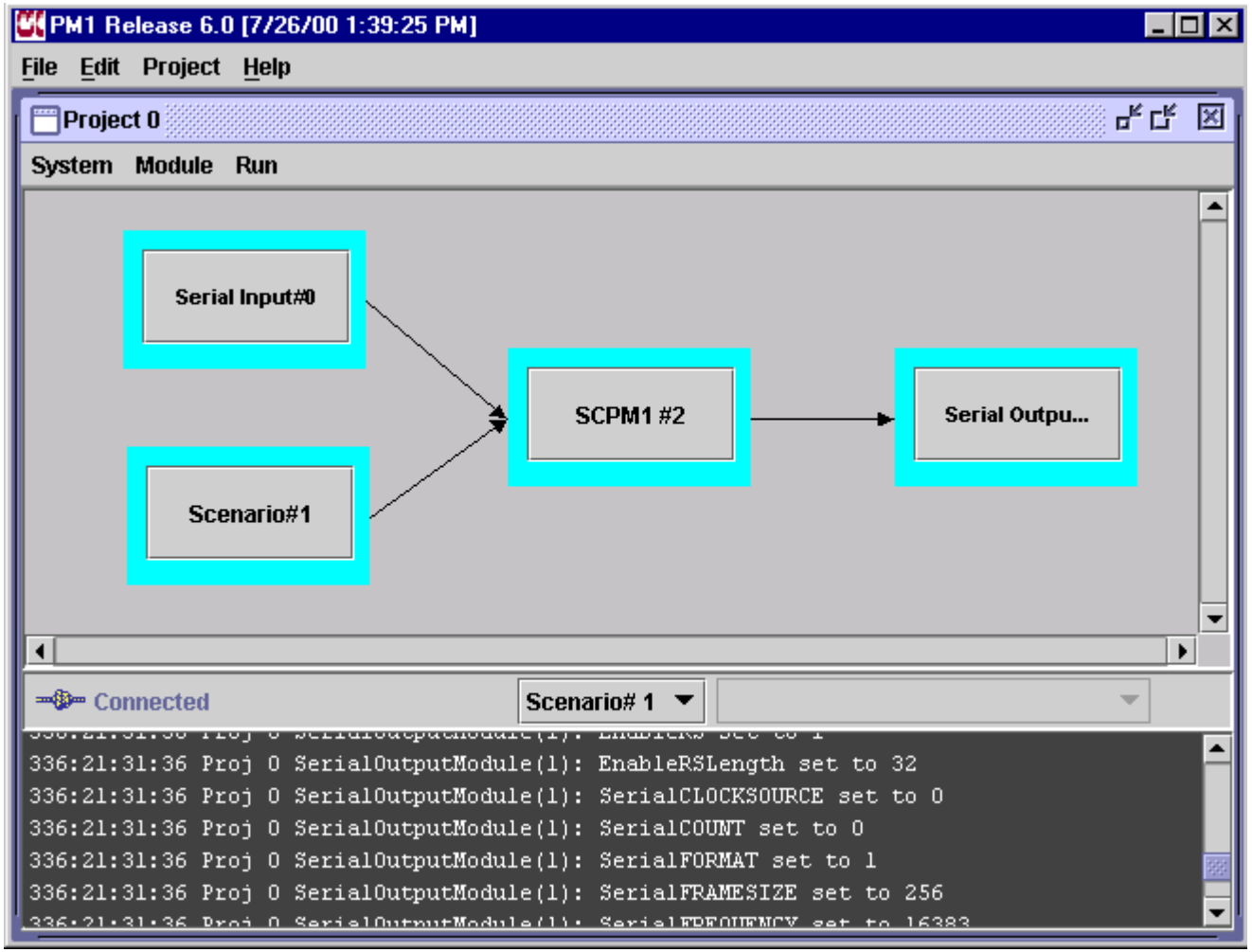
PM-1 Configuration

IP Interface



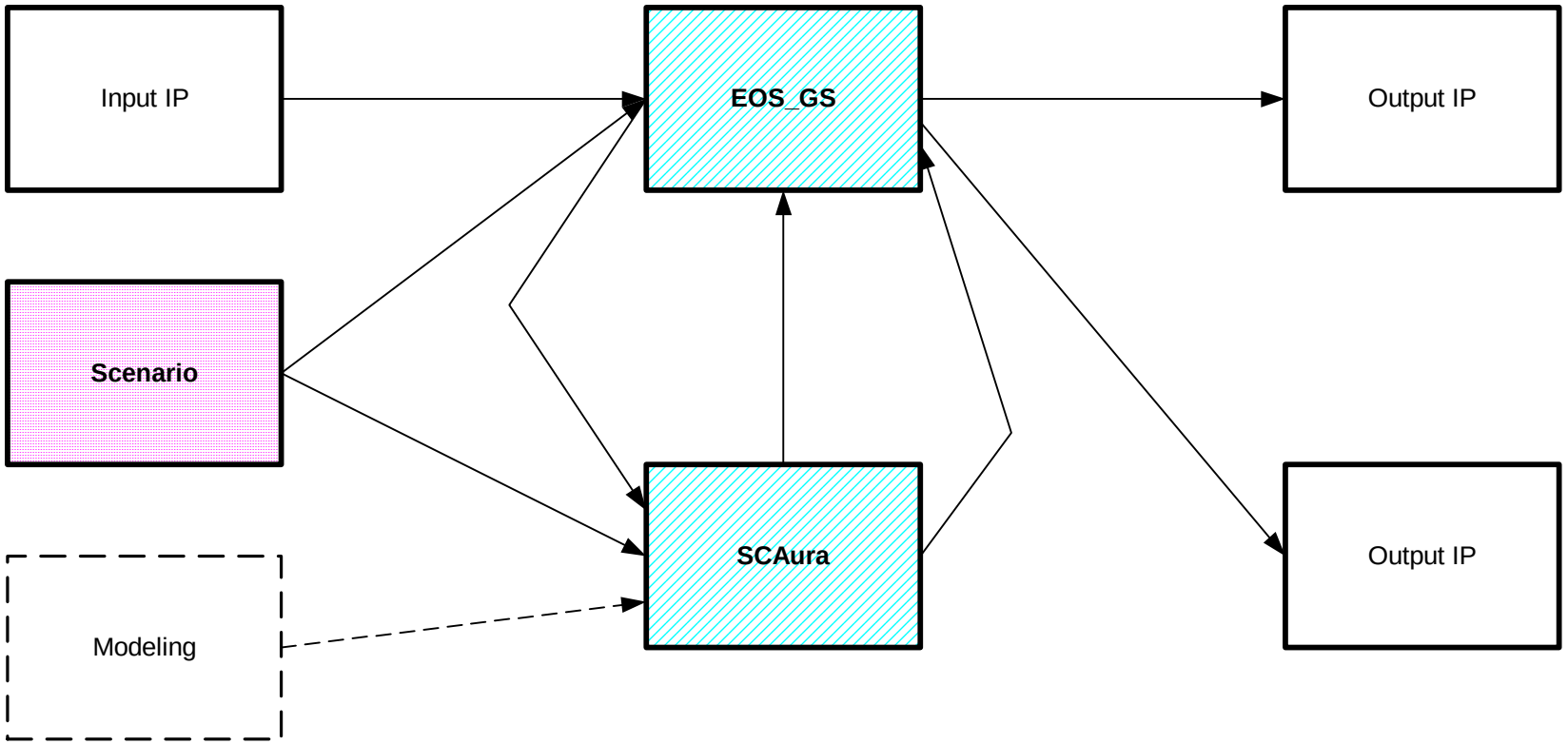
PM-1 Configuration

Serial Interface



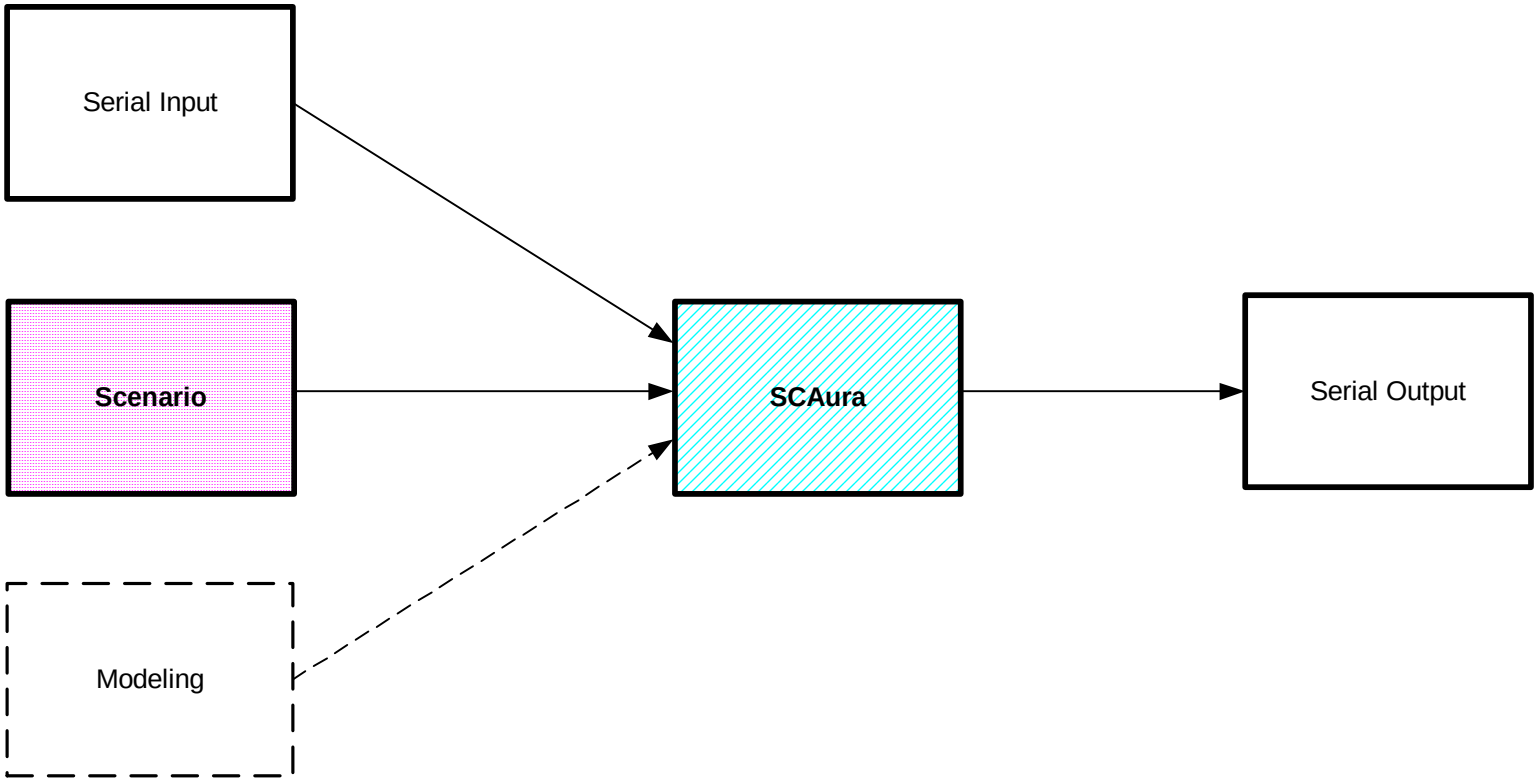
Aura Configuration

IP Interface



Aura Configuration

Serial Interface



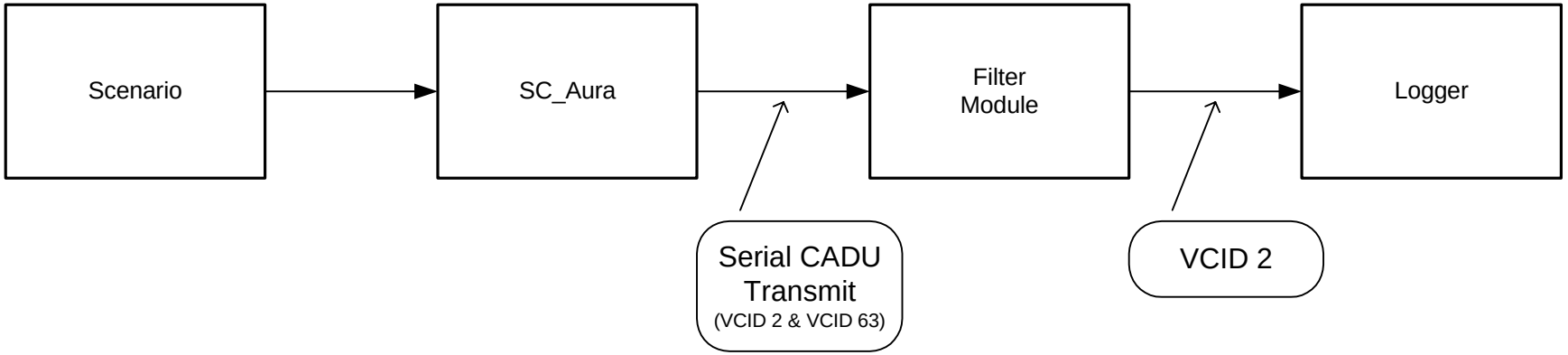
Proposed New MPS Capabilities

- Set telemetry values by Parameter ID (aka LRV)
- Filter Event Messages
- Scenario script enhancements
- Selective logging of telemetry
- Command generation / Data Quality Monitor
- Telemetry APID status display
- CLCW enable / disable tied to Telemetry transmit
- Interleave telemetry packets from a disk file

Proposed New Capabilities
Continued

- The following proposed items represent significant new capabilities, the level of simulation fidelity and associated effort for which are all To Be Negotiated:
  - Stored Command Processing
  - Telemetry Parameter Modeling
  - Instrument Memory and Table loads
  - Instrument Memory Dump
  - SSR Emulation

Aura Configuration
Selective Logging



Tentative Release Plan

- Release 1.0 (March 16, 2001)
  - Will include MPS / Aqua Release 6.x capabilities (using Aqua PDB if one for Aura not yet available)
  - Migration from Aqua to Aura
    - » GSPM1 module to EOS_GS
    - » Spacecraft ID
    - » APID 1000 - remove GIIS time fields
    - » Other, including renaming variables, updating displays, etc.
  - Filtering of event messages
  - Setting of telemetry values by Parameter ID

Tentative Release Plan
Continued

- Release 1.0, continued
  - CLCW Transmit enable status tied to Telemetry Transmit enable
  - Initial scenario processing enhancements
    - » Arithmetic manipulation (e.g., increment, decrement)
      - set <mnemonic> += n
      - set <mnemonic> = <mnem2> +/- n
      - set <mnemonic> = <mnem2> +/- <mnem3>
    - » Connection to multiple modules
      - #k set <mnemonic> n

Tentative Release Plan
Continued

- Release 2.0 (June 15, 2001)
  - Command Generation
  - Data Quality Monitor
  - Selective Logging by APID or VCID
  - Telemetry APID Status Display
  - More scenario processing enhancements
    - » Boolean expressions & If - Then - Else and While loop
    - » Permits mid-fidelity SSR and Tlm Point Modeling
    - » Provides mechanism to respond to command sub-mnemonics

Tentative Release Plan
Continued

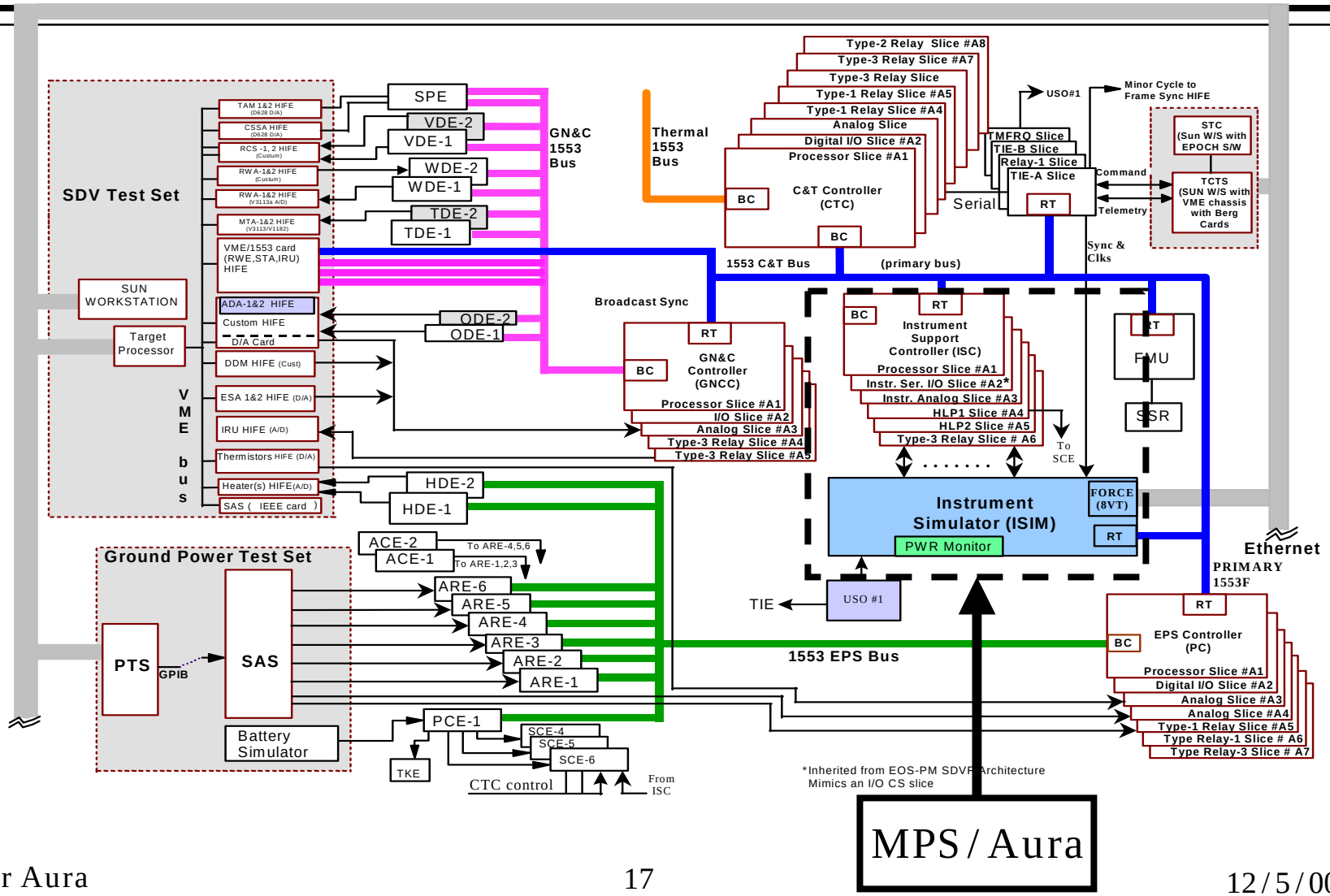
- Release 3.0 (September 14, 2001)
  - Interleave telemetry packets from disk file
  - Stored Command Processing*
  - Instrument Memory and Table Loads*
  - Instrument Memory Dump*
  - SSR Emulation*
  - Telemetry Parameter Modeling*

* Extent of these MPS capabilities to be negotiated

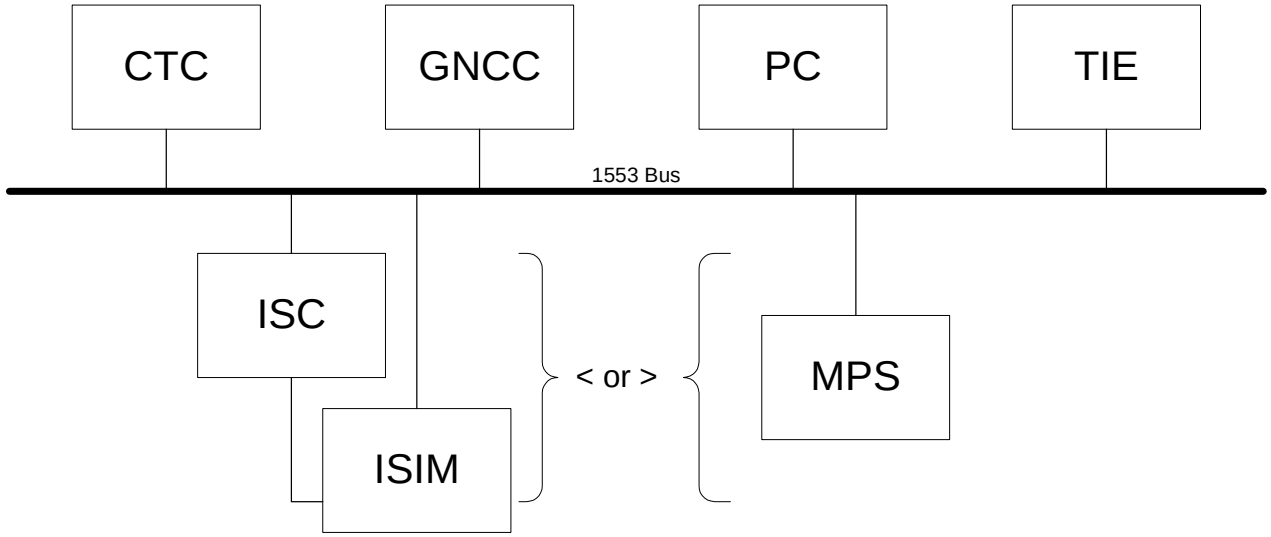
Proposed MPS / Aura Interface to IVVF

- MPS / Aura interface to IVVF simulator under discussion
- MPS existing functionality could help mitigate documented Aura S / C Instrument Simulator (ISIM) limitations
- Effort estimate provided to Aura project, at their request
- Two scenarios discussed
  - Operate MPS and ISIM concurrently to provide needed data
  - Replace the ISIM with MPS
- To Be Resolved
  - Can the ISC work with MPS and ISIM concurrently?
  - If not, could an enhanced MPS replace both ISC and ISIM?

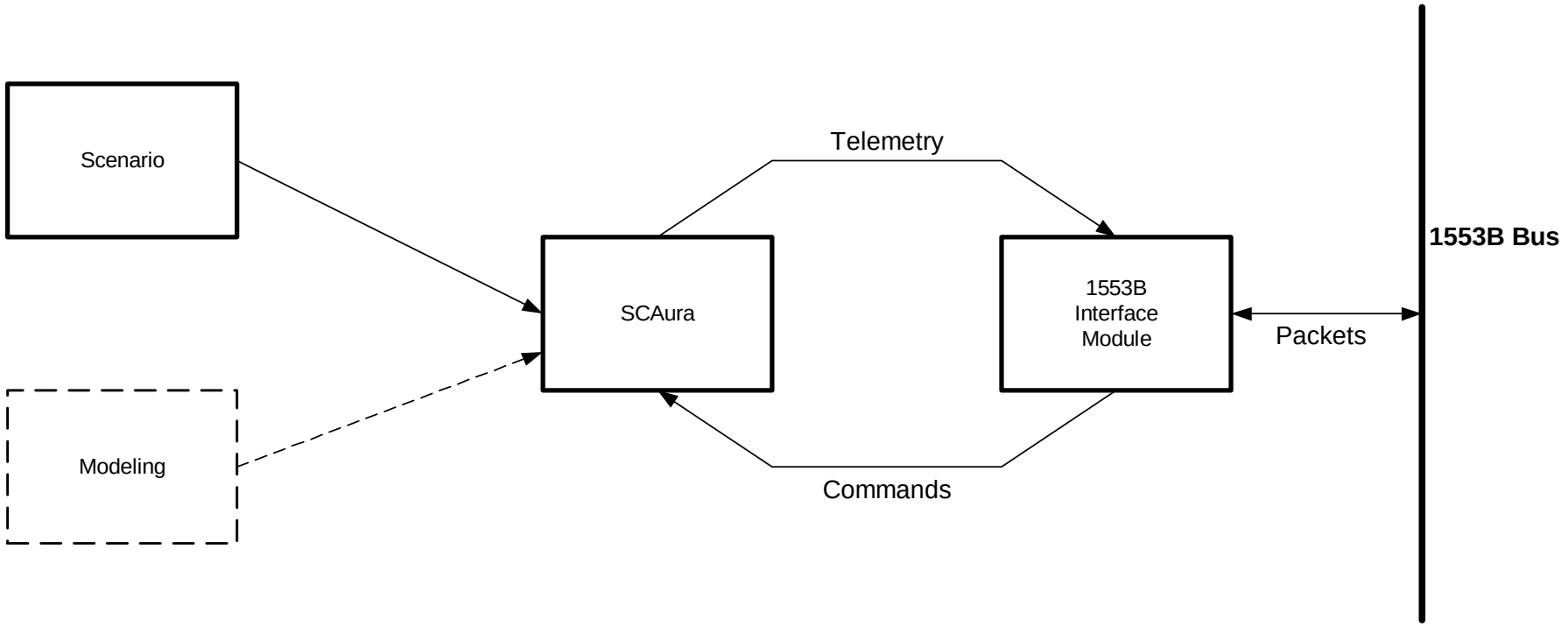
IVVF Test Bed



IVVF Block Diagram



Aura Configuration
IVVF Interface



Dependencies and TBDs

- Spacecraft differences not yet identified
  - Load/Dump
  - Different ISC processor type
- Availability of PDB
- Extra PCs needed to support simultaneous Aqua and Aura testing
  - Denver, Bldg 32, SOC, Bldg 14*

* Adding the MPS interface to the IVVF

Other Activities in Progress

- ETS risk and security assessment might result in required changes in how users interact with MPS
- CSOC-provided MPS-compatible systems are to be installed at the EOS ground stations next year and will be available as a schedulable resource for ESDIS mission systems testing
- Limited MPS/*Aqua* DR fixes
  - Release 6.2 target delivery date January 26, 2001

For More Information

- **Visit our web sites:**

  ETS: http://esdis-it.gsfc.nasa.gov/ETS/

  SIMSS: http://cmex.gsfc.nasa.gov/

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